



# Interactive Packaging Technologies for Ration Components

## What It Is:

A soldier in the field opens a jar of instant coffee and — though the jar was packed over a year ago — smells a strong burst of fresh coffee aroma. Such “aroma emitters” are examples of interactive packaging technology. Interactive or “smart” food packaging actively removes undesirable components or adds desirable ones.

## Why It's Needed:

Rations are formulated to have a long shelf life; still, food can degrade over time. Freshly prepared items are particularly susceptible to spoilage, and the costs of refrigeration and dealing with perishable food waste can be high. The quality and sensory appeal of rations needs to be improved through the use of state-of-the-art packaging materials.

## How It Works:

The umbrella of interactive packaging includes numerous technologies for controlling what's in a package. The key is to match the package properties to those of the food. Some examples:

### Emitters (for adding desirable components):

- Antimicrobial agents that protect against insect infestation and E. coli;
- Films that release chlorine dioxide to keep a package sterile;
- Carbon dioxide generators that inhibit spoilage.

### Absorbers (for removing undesirable components):

- Oxygen scavengers that impede oxidative reactions and slow the deterioration of food;
- Antioxidant films that reduce off-odors and off-flavors;
- Ethylene absorbers that slow the ripening of fresh fruits.

## Benefits:

**Less Waste...** Perishable foods have a longer shelf life, so fewer rations are spoiled and wasted.

**Better Quality...** Interactive packaging improves the taste and aroma of food — which means soldiers eat more and stay healthier.

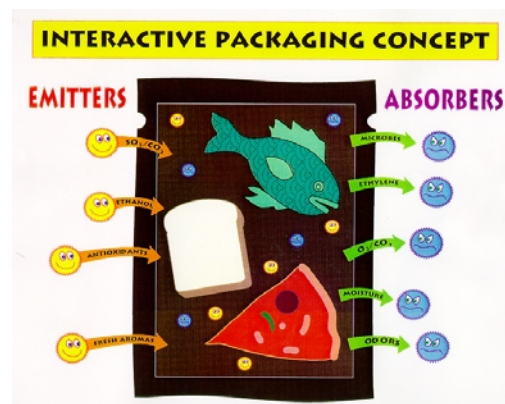
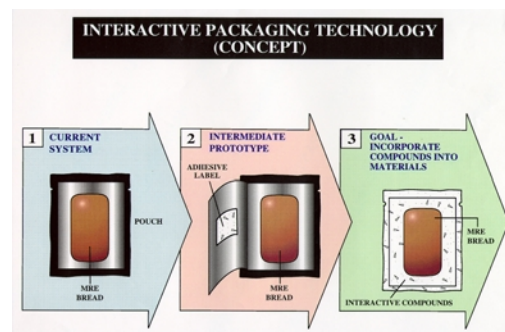
**More Applications...** “Smart” packages will increase the variety of menus and help develop preservative-free and high-moisture foods that are shelf stable. This technology also holds promise in the medical and pharmaceutical industries.

## Point of Contact:

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